

CLAIMS

What is claimed is:

1. A method of improving signal acquisition in a digital communication system comprising the steps of:
 - (a.) determining a position of a mobile station;
 - (b.) determining a relative position of the mobile station relative to a base station;
 - (c.) estimating a chip delay based on the relative positions of the base station and the mobile station;
 - (d.) adjusting the signal acquisition based on the estimated chip delay.
2. The method of claim 1 wherein the adjusting step (d.) includes changing the pseudo-random code offset.
3. The method of claim 1 including the additional steps of:
 - (e.) receiving base station position;
 - (f.) storing base station position.
4. The method of claim 1 wherein the estimated chip delay is used to estimate the timing of the spreading code.
5. The method of claim 1 including the additional steps of:
 - (e) determining velocity;
 - (f) updating the chip delay estimate based on velocity.
6. A method of improving signal acquisition in a digital communication system comprising the steps of:
 - (a.) determining a position of a mobile station;

(b.) determining a relative position of a mobile station relative to a base station;

(c.) determining environment type based on relative position;

(d.) adjusting signal acquisition based on the environment type;

7. A method of improving signal acquisition in a digital communication system comprising the steps of:

(a.) determining a relative velocity of a mobile station with respect to a base station;

(b.) estimating a Doppler frequency shift based on the relative velocity of the mobile station;

(c.) adjusting signal acquisition frequency based on the Doppler shift.

8. A mobile station comprising:

a position determination device;

a processor coupled to the position determination device and configured to perform the following steps:

(a.) determining a position of a mobile station from the position determination device;

(b.) determining a relative position of the mobile station relative to a base station;

(c.) estimating a chip delay based on the relative positions of the base station and the mobile station;

(d) adjusting the signal acquisition based on the estimated chip delay.

- a memory coupled to the processor;
- a transceiver coupled to the processor and configured to transmit and receive signals;
- a first antenna coupled to the position determining device;
- a second antenna coupled to the transceiver;
- a mobile power source configured to power the processor;
- a case enclosing the processor;

9. The mobile station of claim 8 wherein the first antenna and the second antenna are the same antenna.

10. The mobile station of claim 8 wherein the mobile station is a mobile handset.

11. The mobile station of claim 8 wherein the adjusting step (d) includes changing the pseudo-random code offset.

12. The mobile station of claim 8 wherein the position determining device is a device that uses global positioning satellite signals to determine position.

13. A mobile station comprising:

- a position determination device;
- a processor coupled to the position determination device and configured to perform the following steps:
 - (a.) determining a position of a mobile station from the position determination device;
 - (b.) determining a relative position of a mobile station relative to a base station;

- (c.) estimating a chip delay based on the relative positions of the base station and the mobile station;
- (d) adjusting the signal acquisition based on the estimated chip delay.

- a memory coupled to the processor;
- (e) receiving a position of a base station;
- (f) storing base station position;
- a memory coupled to the processor;
- a transceiver coupled to the processor and configured to transmit and receive signals;
- a first antenna coupled to the position determining device;
- a second antenna coupled to the transceiver;
- a mobile power source configured to power the processor;
- a case enclosing the processor;

14. The mobile station of claim 13 wherein the first antenna and the second antenna are a single antenna.

15. The mobile station of claim 13 wherein the mobile station is a first mobile station and the position determining device is a second mobile station that transmits position to the first mobile station.

16. A mobile station comprising:

- a position determination device;
- a processor coupled to the position determination device and configured to perform the following steps:

- (a.) determining a position of a mobile station from the position determination device;
- (b.) determining a relative position of a mobile station relative to a base station;
- (c.) determining environment type based on relative position;
- (d) adjusting the signal acquisition based on the environment type.

a memory coupled to the processor;

a mobile power source configured to power the processor;

17. A mobile station comprising:

a position determination device;

a processor coupled to the position determination device and configured to perform the following steps:

- (a.) determining a relative velocity of a mobile station with respect to a base station;

- (b.) estimating a Doppler frequency shift based on the relative velocity of the mobile station;

- (c.) adjusting signal acquisition frequency based on the Doppler shift.

a memory coupled to the processor;

a mobile power source configured to power the processor;